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ABSTRACT

This issue focuses on what recent research from Tennessee, Texas, Massachusetts, and Alabama says about the most significant factor that impacts student achievement: the teacher. After presenting teacher effectiveness data from the four states, it discusses what makes an effective teacher, focusing on the need for strong verbal and math skills, deep content knowledge, and teaching skills. It describes inequities in the distribution of qualified teachers to poor and minority students and explains that this is more an issue of race than of class, since poor white students have a higher likelihood of having well qualified teachers than do poor black students. After discussing how to create a more equitable distribution of teacher expertise, this issue looks at how to ensure qualified teachers for all children. Strategies include creating standards for entry into the teaching profession; setting accountability measures for colleges and universities that prepare teachers; providing professional development for existing teachers; assuring that poor and minority children have teachers who are at least as qualified as the ones who teach other students; implementing parents' right-to-know policies; and instituting recruitment and reward programs to attract the best students into teaching. A sidebar describes state investment in well prepared teachers. (SM)

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GOOD TEACHING MATTERS: HOW WELL-QUALIFIED TEACHERS CAN CLOSE THE GAP

THINKING K-16
VOLUME 3, ISSUE 2, SUMMER 1998

The Education Trust

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Good Teaching Matters

How Well-Qualified Teachers Can Close The Gap

For decades, educators, educators-in-training and the public more broadly have been relentlessly fed the same message about achievement among poor and minority students: "Because of poverty and other neighborhood conditions, these students enter school behind other students. As they progress through the grades, the deficits accumulate, leaving them further and further behind other students." Their conclusion? Nothing schools do makes a very big difference.

As an organization, we have questioned the prevailing explanation for some time. "If poverty always overwhelms everything else," we ask, "what explains the 89% pass rate on the Texas state assessment by the Loma Terrace School in El Paso where almost 90% of the children are poor? Or what about the 95% fourth grade pass rate on the same exam by the entire Mission Independent School District with a 94% poverty rate? And why, if schools really don't make a difference, are the low-income students in Community School District #2 in New York City performing so much higher now than were their counterparts a decade ago?"

Always, the response is the same. "It's that superstar principal/superintendent (choose one). We can't expect those kinds of feats from the mere mortals who lead most of our schools."

But what if that answer is wrong? What if these schools are succeeding not on the force of someone's personality, but simply by teaching students what they need to know to perform at high levels? What if, in other words, poor and minority students are performing below other students not because something is wrong with them or their families, but because most schools don't bother to teach them what they need to know?

By now, those of you who are familiar with our work know that we are absolutely convinced—by both research and extensive experience in classrooms all over the country—that poor and minority youngsters will achieve at

continued next page

Inside Thinking K-16

Good Teaching Matters 1

... A Lot 3
Kati Haycock

Who Teaches Whom 7
A State by State Analysis

the same high levels as other students if they are taught at those levels. In our groundbreaking report, *Education Watch: The Education Trust National and State Data Book*, we document the clear relationship between low standards, low-level curriculum, under-educated teachers and poor results. We argue, further, that if states and school districts work hard on these three issues, they can close the achievement gap.

If we only took the simple step of assuring that poor and minority children had highly qualified teachers, about half of the achievement gap would disappear.

Most of the time, we have felt as Ron Edmonds undoubtedly felt: surrounded by researchers clinging to dog-eared copies of the Coleman Report and arguing that nothing works.

Recently, however, a number of large-scale studies provide convincing proof that what we do in education does matter. Schools—and especially teachers, it turns out—really DO make a difference. Earlier educational researchers just didn't have very good ways of measuring the variables.

We have chosen to focus this issue of Thinking K-16 on what all of the studies conclude is the most significant factor in student achievement: the teacher. We focus here not because we think improvements in teachers' capabilities or changes in teacher assignment patterns are, by themselves, a silver bullet, but because such changes are clearly more important to increasing student achievement—especially among poor and minority students—than any other.

We focus on teacher qualifications here also because this is an issue within our power to change. If we but took the simple step of assuring that poor and minority children had teachers of the same quality as other children, about half of the achievement gap would disappear. If we went further and assigned our best teachers to the students who most need them (a step, by the way, that makes sense to most people outside of education), there's persuasive evidence to suggest that we could entirely close the gap.

Thought provoking, yes? Read on.

—Kati Haycock

We gratefully acknowledge the support of the National Science Foundation Division of Undergraduate Education, the National Association of System Heads, and the State Higher Education Executive Officers for this publication.

About Thinking K-16 and The Education Trust

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The Education Trust was created to promote high academic achievement for all students at all levels — kindergarten through college. While we know that all institutions could better serve their students, our work focuses on the schools and colleges most often left behind in efforts to improve education: those institutions serving Latino, African American, Native American and low-income students. The Education Trust works alongside policymakers, parents, education professionals, and community and business leaders, in districts across the country, who are trying to transform their schools and colleges into institutions that genuinely serve all students.

Thinking K-16 is published with the intent to share lessons learned in these communities with policymakers as well as with educators and members of the public concerned with the quality of education provided our neediest young people.

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Good Teaching Matters ... A Lot

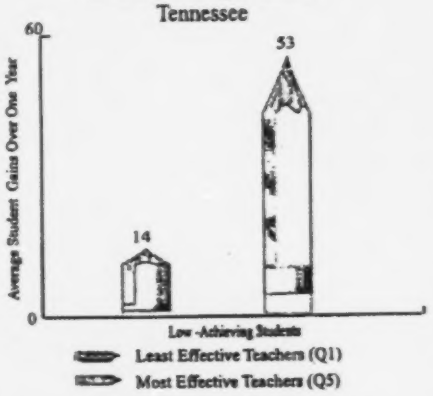
by Kati Haycock
Director, The Education Trust

Parents have always known that it matters a lot which teachers their children get. That is why those with the time and skills to do so work very hard to assure that, by hook or by crook, their children are assigned to the best teachers. (That is also at least part of the reason why the children of less skilled parents are often left with the worst teachers, but more on that later.)

Professional educators typically reject these notions. When parents ask for their children to be assigned to a particular teacher, or to be moved out of the classroom of another, most principals counsel them not to worry. "Your child will learn what he or she needs to from any of our teachers."

Recent research from Tennessee, Texas, Massachusetts and Alabama proves that parents have been right all along. They may not always know which teachers really are the best, but they are absolutely right in believing that their children will learn a lot from some teachers and only a little from others—even though the two teachers may be in adjacent classrooms. "The difference between a good and a bad teacher can be a full level of achievement in a single school year," says Eric Hanushek, the University of Rochester economist notorious for macroanalyses suggesting that virtually nothing seems to make a difference.[1]

The Effect of Different Teachers On Low-Achieving Students Tennessee



Sanders, William L. and Rivers, Jean C. "Cumulative And Residual Effects of Teachers on Future Student Academic Achievement," 1996, Table 1, p. 9.

TEACHER EFFECTS: TENNESSEE

Tennessee is one of the few states with data systems that make it possible to tie teachers to achievement in their classrooms. Moreover, the state's value-added approach for assessing student achievement allows observers to look at the gains students make during a particular school year.

William L. Sanders, director of the Value-Added Research and Assessment Center at the University of Tennessee, Knoxville, has studied these data extensively. By grouping teachers into quintiles based on their effectiveness in producing student learning gains, his work allows us to examine the impact of teacher effectiveness on the learning of different types of students, from low- to high-achievers.

The chart adjacent shows the effect teachers from different quintile levels have on low-achieving students. On average, the least effective teachers (Q1) produce gains of about 14 percentile points during the school year. By contrast, the most effective teachers (Q5) posted gains among low-achieving students that averaged 53 percentile points.

The Tennessee data show dramatic differences for middle- and high-achieving groups of students, too.

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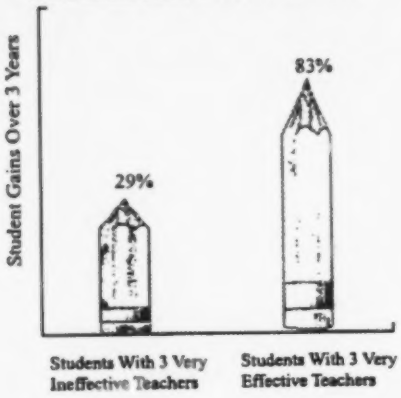
Cumulative Effects of Teacher Sequence on Fifth Grade Math Scores: Tennessee



Sanders, William L. and Rivers, Joan C., "Cumulative And Residual Effects of Teachers on Future Student Academic Achievement," 1996, Figure 1, p.12

For example, high-achieving students gain an average of only 2 points under the direction of Q1 (least effective) teachers but an average of 25 points under the guidance of Q5 (most effective) teachers. Middle achievers gain a mere 10 points with Q1 teachers but in the mid-30s with Q5 teachers.

There is also considerable evidence that, at least in Tennessee, the effects of teachers are long-lived, whether they advance student achievement or squash it. Indeed, even two years after the fact, the performance of fifth-grade students is still affected by the quality of their third-grade teacher. The chart above shows the examples of different patterns of teacher effectiveness for one metropolitan system.

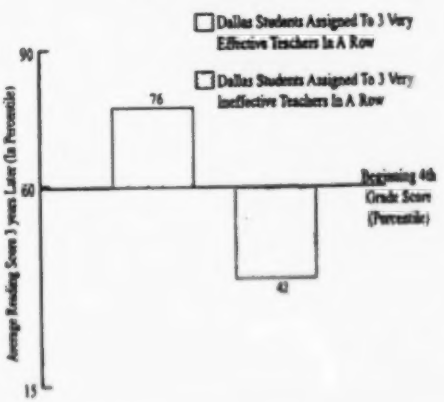
As Sanders points out, students whose initial achievement levels are comparable have "vastly different academic outcomes as a result of the sequence of teachers to which they are assigned."[2] Differences of this magnitude—50 percentile points—are stunning. As all of us know only too well, they can represent the difference between a "remedial" label and placement in the "accelerated" or even "gifted" track. And the difference between entry into a selective college and a lifetime at McDonald's.

TEACHER EFFECTS: DALLAS

A variety of recent studies in Texas show similar differences in achievement between students taught by teachers of differing quality. Borrowing from some of Sanders's techniques, researchers in the Dallas Independent School District recently completed their first-ever study of teacher effects on the ability of students to perform on assessments. In sharing their findings, Robert Mendro, the district's executive director of institutional research, said, "what surprised us the most was the size of the effect."[3]

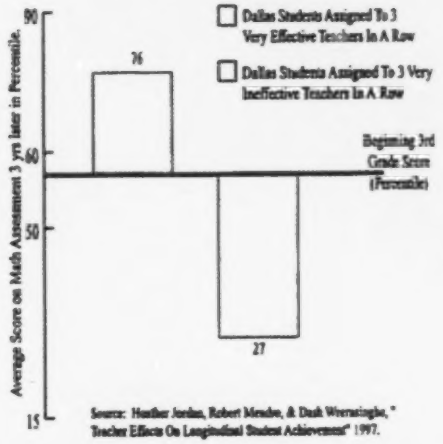
For example, the average reading scores of a group of Dallas fourth graders who were assigned to three highly effective teachers in a row rose from the 59th percentile in fourth grade to the 76th percentile by the conclusion of sixth grade. A fairly similar (but slightly higher achieving) group of students was assigned three consecutive ineffective teachers and fell from the 60th percentile in fourth grade to the 42nd percentile by the end of sixth grade. A gap of this magnitude—more than 35 percentile points—for students who started off roughly the same is hugely significant.

Effects On Students' Reading Scores In Dallas (Grades 4-6)


Dallas Students Assigned To 3 Very Effective Teachers In A Row
Dallas Students Assigned To 3 Very Ineffective Teachers In A Row
90
60
15
76
42
Beginning 4th Grade Score (Percentile)
Average Reading Score 3 years Later (In Percentile)

Source: Heather Jordan, Robert Mendro, & Dinh Weerasinghe, "Teacher Effects On Longitudinal Student Achievement" 1997.

Effects On Students' Math Scores In Dallas (Grades 3-5)


Dallas Students Assigned To 3 Very Effective Teachers In A Row
Dallas Students Assigned To 3 Very Ineffective Teachers In A Row
Beginning 3rd Grade Score (Percentile)
Average Score on Math Assessment 3 yrs later in Percentile
90
60
50
15
76
27

Source: Heather Jordan, Robert Mendro, & Dash Weerasinghe, "Teacher Effects On Longitudinal Student Achievement" 1997.

The impact of teacher effectiveness is also clear in mathematics. For example, a group of beginning third-graders in Dallas who averaged around the 55th percentile in mathematics scored around the 76th percentile at the end of fifth grade after being assigned to three highly effective teachers in a row. By contrast, a slightly higher achieving group of third graders—averaging around the 57th percentile—were consecutively taught by three of the least effective teachers. By the conclusion of fifth grade, the second group's percentile ranking had fallen to 27th. This time the youngsters, who had scored nearly the same as beginning third-graders, were separated by a full 50 percentile points just three years later.

TEACHER EFFECTS: BOSTON

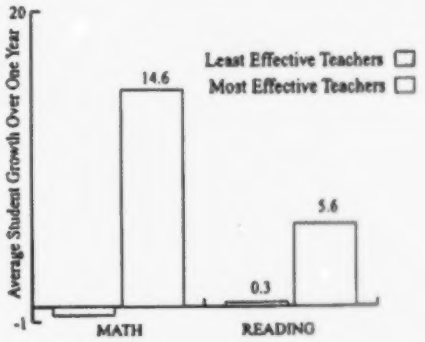
The Boston Public Schools are taking a serious look at factors that influence student learning, including the effectiveness of their teachers. A recently released study by Bain and Company conducted on behalf of the district shows the correlation between high school teachers and their students' academic growth in math and reading. The authors examined classrooms of BPS tenth-graders whose average scores were approximately the same and charted their progress over the year by teacher. The differences were dramatic. In reading, they found that although the gains of students with the top third teachers were slightly below the national median for growth (5.6 on average compared to 8.0), the students with teachers from the bottom third showed virtually no growth (0.3). The math results were even more striking. The top third teachers produced gains on average that exceeded the national median (14.6 to 11.0 nationally), whereas the bottom third again showed virtually no growth (-0.6).

Altogether, this means that one-third of BPS teachers are producing six times the learning seen in the bottom third. As one frustrated headmaster put it, "About one-third of my teachers should not be teaching."

WHAT MAKES FOR TEACHER EFFECTIVENESS?

None of these studies has yet advanced to the obvious next step: identifying the qualities that make for an effective teacher. But other researchers have used Texas's extensive database on both teachers and students to examine the impact of specific teacher characteristics on student achievement. Together with work from Alabama and North Carolina, this research helps us to get underneath the matter of teacher effectiveness.

Boston Students With Effective Teachers Showed Greater Gains



Source: Boston Public Schools, "High School Restructuring," March 9, 1998.

1. Strong Verbal and Math Skills

The first thing that is clear when you look across the various studies is the critical importance of strong verbal and math skills. Harvard's Ronald F. Ferguson, for example, has looked closely at the relationship between student achievement and teacher performance on a basic literacy examination (the Texas Examination of Current Administrators and Teachers, which was administered to all teachers and administrators in Texas in 1986). Ferguson found a significant positive relationship between teacher test scores on TECAT and student scores on the Iowa Test of Basic Skills (ITBS), with higher scoring teachers more likely to produce significant gains in student achievement than their lower scoring counterparts. Indeed, a change of one standard deviation in a district's teacher scores produced a corresponding change of .17 standard deviation in student scores, when other differences were controlled.[4]

Students' test scores can mean the difference between a remedial label and the gifted track — or between entry into a selective college and a lifetime at McDonald's.

Ferguson got similar results in an analysis of the impact of teacher and classroom qualities on student achievement scores in Alabama. As in the Texas studies, he found a strong positive relationship between teacher test scores (in this case, ACT scores) and student achievement results.[5]

2. Deep Content Knowledge

There is also considerable research showing how important teachers' content knowledge is to their effectiveness with students, especially at the middle and senior high school levels. The data are especially clear in mathematics and science where teachers with majors in the fields they teach routinely get higher student performance than teachers who did not. Goldhaber and Brewer examined this relationship using data from the National Educational Longitudinal Study of 1988 (NELS), an ongoing survey of individuals who were in eighth grade in 1988. Goldhaber and Brewer found a significant positive relationship between teachers' degrees and students' achievement in technical subjects. They concluded that "in mathematics and science, it is the teacher subject-specific knowledge that is the important factor in determining tenth-grade achievement."[6]

The data are less clear in English and social studies; in these subjects students taught by majors don't show consistently better scores than students taught by teachers who majored in something else. However, other evidence suggests that content is no less important in these two disciplines. For example, a recent study in Hawaii asked social studies teachers to rate their own level of understanding about various historical periods and teaching methods, then compared teacher expertise to student achievement. Not surprisingly, there was an almost perfect match: students performed best in the domains where teachers indicated the most expertise.[7]

3. Teaching Skill?

All of this seems to beg the question: what about teaching knowledge and skills? Is content knowledge really sufficient for effective teaching? Clearly not. One only has to spend a few semesters in higher education to see that the deep content knowledge inherent in the Ph.D. doesn't necessarily lead to effective teaching.

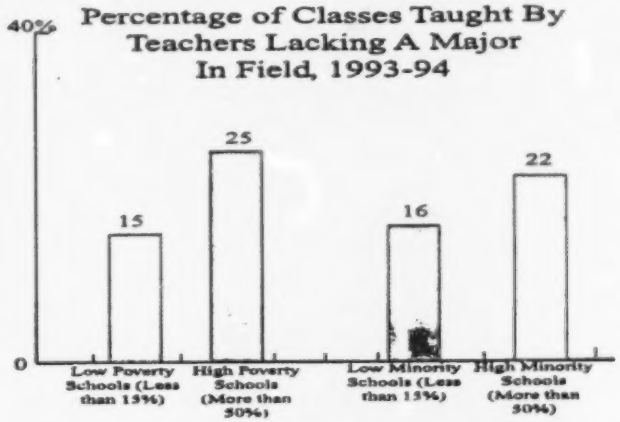
That said, the large-scale studies we have reviewed are not particularly helpful in identifying ways to quantify teaching expertise. Neither education courses completed, advanced education degrees, scores on professional knowledge sections of licensure exams nor, interestingly, years of experience seem to have a clear relationship to student achievement. Perhaps the work going on at the National Board for Professional Teaching Standards or Lee Shulman's work on "pedagogical content knowledge" at the Carnegie Foundation for the Advancement of Teaching will advance our understanding of—and options for developing and measuring—teaching knowledge and skill.

In the meantime, we suggest that educational leaders not get sidetracked: there is more than sufficient evidence about the importance of deep content knowledge and strong verbal skills to serve as a foundation for immediate action. At the very least, we know

enough to call the question with faculty in the arts and sciences, who, after all, are responsible for developing both content knowledge and verbal skills among intending teachers. It is also enough to justify a second look at hiring and assignment criteria. If good teachers matter, we need to be sure that we are getting the best we can.

INEQUITIES IN DISTRIBUTION

Our emerging understanding of the critical importance of good teachers has especially profound implications for poor and minority youngsters. For no matter how quality is defined, these youngsters come up on the short end. While the teaching force in high-poverty and high-minority communities certainly includes some of the most dedicated and talented teachers in the country, the truth is that these teachers are vastly outnumbered by under- and, indeed, unqualified colleagues.



Source: Richard Ingersoll, University of Georgia, Unpublished, 1998.

These patterns are clear in national data tabulations on out-of-field teaching specially prepared for the Education Trust earlier this year by Richard Ingersoll, a professor at the University of Georgia. As is evident in the table above (as well as in the state tabulations on pp. 8-9) minority and poor youngsters—the very youngsters who are most dependent on their teachers for content knowledge—are systematically taught by teachers with the least content knowledge.

Similar inequities show up at all grade levels in the state-level studies described above, and many more. For example, in Tennessee, black students are almost twice as likely to be taught by ineffective "Q1" teachers as are white children, and are considerably less likely to be taught by the most effective teachers.

The patterns look quite similar in Texas, where, according to researchers John Kain and Kraig Singleton, African American and Latino children are far more likely to be taught by teachers who scored poorly on the TECAT examination. Indeed, as the percentage of non-white children in the school increases, the average teacher score declines.[8] Finding the same patterns in his analysis, Ferguson wrote that "[i]n Texas, and certainly in other places too, attracting and retaining talented people with strong skills to teach in the districts where black students are heavily represented is part of the unfinished business of equalizing educational opportunity."[9]

RACE MORE THAN CLASS?

Contrary to the assumptions that many people may make, inequities in the distribution of teacher expertise are not driven wholly by finances. If they were, we would expect that poor minority children would have teachers of about the same quality as poor white children. But such is not always the case.

In their analysis of Texas data, Kain and Singleton found disturbing differences. Poor white children, it turns out, appear to have a higher likelihood of having well qualified teachers than poor black children.[10]

Similar patterns are evident in teacher quality data from other states. In the chart on pages 8 and 9, for example, it is clear that students who attend predominantly minority secondary schools in Virginia are more likely to be taught by underqualified teachers than stu-

continued page 10

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State Investment in Well-Prepared Teachers

The most important educational investment a state can make is in highly qualified teachers. When teachers have too little knowledge of the subjects that they teach, their students are denied the most basic learning resource. There are several ways to examine teacher quality. This chart shows one: the percentage of secondary school classes taught by teachers who lack a college major in the subject area.

The chart shows, by state:

- the overall percentages of classes taught by teachers who do not have a major in the subject that they teach; and
- the percentages of classes taught by teachers who do not have a major in the subject that they are teaching in high-poverty schools/high-minority schools (schools in which more than 50% of the students are low-income or non-white) vs. low-poverty schools/low-minority schools (schools in which fewer than 15% of the students are low-income or non-white).

In reviewing the chart, the reader will see a stark and troubling pattern: low-income students and students of color are less likely than other students to be taught by teachers with a college major in the subject area that they are teaching.

The data used to build this chart are drawn from the Schools and Staffing Survey conducted by the National Center for Education Statistics (NCES) in school year 1993-94. Richard Ingersoll of the University of Georgia conducted the analysis. While the Schools and Staffing Survey is large scale, in some states the data are inadequate to support stable estimation for certain kinds of schools so we have not printed a percentage. There are other cases where the sample meets normal standards, but the Education Trust staff cautions the reader with an "*" that these samples are "on the smallish side" and advises further research.

We have ranked states on the overall quality of their teachers. The fewer underqualified teachers, the better the rank. We also rank states according to disparity in assignment of underqualified teachers. "Disparity by poverty", for example, is the difference between the percentage of classes in high- and low-poverty schools that are taught by underqualified teachers.

Percentage of secondary school classes taught by teachers lacking a major in field by state, 1993-1994

			By School Poverty			By School Minority Population		
	Overall	(Rank)	Low	High	(Rank)	Low	High	(Rank)
Alabama	17%	(21)	14%	23%	(19)	17%	16%	(7)
Alaska	29	(51)	20	48	(33)	23	41	(29)
Arizona	26	(49)	17	37	(31)	26	29	(13)
Arkansas	14	(8)	11	11	(5)	15	14	(7)
California	27	(50)	28	29	(6)	26 *	27	(12)
Colorado	20	(33)	17			20	24 *	(15)
Connecticut	13	(6)	12			12	15	(13)
Delaware	24	(43)					25	
D.C.	17	(21)					17	
Florida	18	(28)	22	19	(4)	24	17	(2)
Georgia	21	(36)	15	33	(29)	25	19	(3)
Hawaii	24	(43)	13				25	
Idaho	20	(33)	15			19		

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	Overall	(Rank)	By School Poverty Low	High	(Rank)	By School Minority Population Low	High	(Rank)
Illinois	16%	(15)	13%	24%	(24)	13%	25%	(25)
Indiana	13	(6)	10	15 *	(11)	12	26 *	(27)
Iowa	12	(4)	7	17	(23)	12		
Kansas	15	(12)	15			14		
Kentucky	24	(43)	20	29	(19)	24		
Louisiana	23	(40)	9	28	(30)	21	21	(10)
Maine	22	(38)	19			21		
Maryland	17	(21)	13			14	20	(18)
Massachusetts	16	(15)	13	28 *	(28)	15	20	(17)
Michigan	17	(21)	14	18	(10)	18	13 *	(4)
Minnesota	10	(1)	11	6 *	(3)	9		
Mississippi	25	(47)	24 *	29	(11)	25	22	(6)
Missouri	14	(8)	12	18 *	(15)	14		
Montana	16	(15)	11	35	(32)	16	32 *	(28)
Nebraska	14	(8)	16	8 *	(1)	14		
Nevada	15	(12)	13			28 *		
New Hampshire	14	(8)	13			15		
New Jersey	20	(33)	16	25	(19)	16	24	(22)
New Mexico	22	(38)	21	24	(8)		23	
New York	12	(4)	8	22	(27)	7	18	(24)
North Carolina	19	(31)	11	41	(35)	15	24	(23)
North Dakota	11	(3)	10	17	(17)	11	17 *	(18)
Ohio	19	(31)	16	45	(34)	16	42	(30)
Oklahoma	17	(21)	13	18	(11)	17	23	(18)
Oregon	23	(40)	18			26		
Pennsylvania	16	(15)	15	22	(17)	14	26	(26)
Rhode Island	10	(1)	13 *			10		
South Carolina	23	(40)	20	25	(11)	25	21	(5)
South Dakota	16	(15)	14	17	(8)	15		
Tennessee	25	(47)	19	30	(24)	31	19	(1)
Texas	18	(28)	19	21	(7)	19	18	(7)
Utah	16	(15)	18			16		
Vermont	17	(21)	12			16		
Virginia	21	(36)	14	20	(15)	24	24	(10)
Washington	24	(43)	23	32	(19)	24	28	(15)
West Virginia	18	(28)	22	16	(2)	17		
Wisconsin	17	(21)	16	27	(24)	18	25 *	(21)
Wyoming	15	(12)	15			14		

* Interpret with caution

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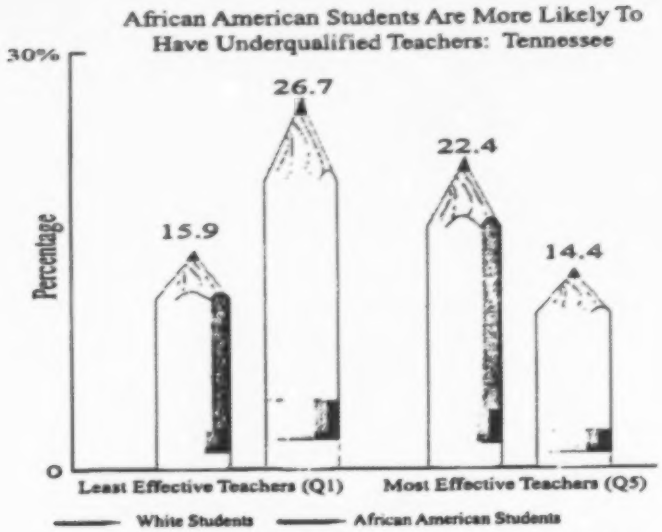


Source: Sanders, William L. and Rivers, Joan C. "Cummulative And Residual Effects of Teachers on Future Student Academic Achievement," 1996, Table 1, p.

dents who attend high-poverty secondary schools. The same is true in Pennsylvania and Oklahoma: students in high-minority secondary schools are more likely to be taught by teachers without a college major in the subject they are teaching.

The problems in central cities are particularly acute, according to a 1995 report from the National Governors Association. "Emergency hiring, assignment of teachers outside their fields of preparation, and high turnover in underfunded schools conspire to produce a situation in which many poor and minority students are taught throughout their entire school careers by a steady stream of the least qualified and experienced teachers." [11]

A MORE EQUITABLE DISTRIBUTION OF TEACHER EXPERTISE

What would happen if minority and poor children had teachers of the same quality as other children? A large part of the gap would simply disappear. The estimates vary somewhat depending upon the statistical model used, but in no case is the effect minor.

- Ferguson's modeling for several metropolitan Alabama districts suggests that an increase of 1 standard deviation in the test scores of teachers who teach black children would produce a decline of about two-thirds in the black/white test score gap in that state.[12]
- Strauss's study of student achievement in North Carolina suggested that a 1% relative increase in teacher scores on the NTE would bring about a 5% relative decline in the percentage of students who fail standardized competency exams.[13]

In other words, much of what we have blamed on children and their families for decades is actually the result of things we have done to them. As a nation, we have deprived our neediest students of the very ingredient most important to learning: a highly qualified teacher.

In his analyses of the Texas data base, Ferguson found a small number of school districts that are exceptions to the general pattern (see below chart). A look at how their youngsters benefit from a steady diet of higher performing teachers gives us a glimpse of how the national data for poor and minority students *could* look...if we had the will.

ASSURING QUALIFIED TEACHERS FOR ALL OF OUR CHILDREN

These findings have profound implications for states and communities that are striving to get vastly larger numbers of their students to high standards of achievement. If education leaders want to accomplish this goal in the near term, they are far more likely to do so if they focus, first and foremost, on quality—quality in

teacher preparation, recruitment, hiring, assignment, and ongoing professional development.

This goes doubly for schools and communities with concentrations of poor and minority children. Rather than continuing to accept the crumbs, these schools and communities must insist on the very best teachers for their children. After all, poor and minority children depend on their teachers like no others. In the hands of our best teachers, the effects of poverty and institutional racism melt away, allowing these students to soar to the same heights as young Americans from more advantaged homes. But if they remain in the hands of underqualified teachers, poor and minority students will continue to fulfill society's limited expectations of them.

What, then, are the elements of a strategy to assure highly qualified teachers for all young Americans?

We don't yet have all the answers. But we know enough to start the conversations. Here are the more powerful ideas we have gleaned from our work with leading states and cities:

1. Standards for entry into the profession.

A number of states are raising the standards for entry into the profession. Virginia, for example, has raised both course requirements in the arts and sciences and cut scores on the Praxis examinations for aspiring teachers. Massachusetts has devised new and much more rigorous examinations, especially in the content areas.

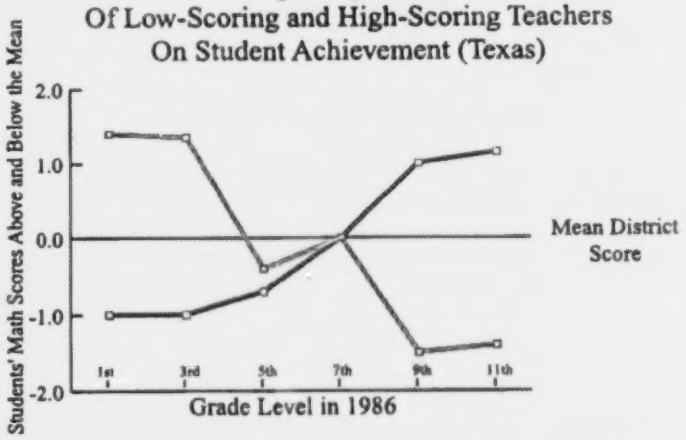
While these attempts are commendable, it is also important to make sure that the measures for teacher content knowledge are solid and aligned with K-12 standards. Preliminary information suggests that existing examinations may be too low: an analysis of a widely used test for prospective high school physics teachers, for example, featured content that one reviewer described as "appropriate for a rigorous ninth-grade physical science course." If this is correct, these tests are wholly insufficient either to assure adequate content knowledge of individual teachers or to use for accountability purposes with arts and sciences departments.

Any discussion about raising entry standards for teachers should include an examination of how well the standards align with the K-12 content candidates will have to teach, and the assessments used to find out if candidates can teach this content.

2. Accountability measures for colleges and universities that prepare teachers.

In Texas, for example, colleges that have pass rates below 70% (soon to be 75%) on the state's teacher licensure exam will lose the right to prepare teachers. To be sure that its intentions are understood, the legislature spells out precisely what it means: 70% of the

Long-Range Effects
Of Low-Scoring and High-Scoring Teachers
On Student Achievement (Texas)



Source: Ronald F. Ferguson, "Evidence That Schools Can Narrow the Black-White Test Score Gap," 1997.

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white graduates, 70% of the Latino graduates, 70% of the black graduates and so on. Not a single group can be left behind. Moreover, if aspiring math teachers, for example, cannot pass the exam, then the math department loses the franchise. Other states are heading in this direction, as well. Universities, together with their nearby school districts, could take the lead from such state-level actions: decide on what intending teachers need to know in their subjects and hold academic departments accountable for getting them there before they graduate.

If education leaders want to close the achievement gap, they must focus, first and foremost, on developing qualified teachers.

3. Professional development for existing teachers.

Teacher effectiveness is not forever fixed. Through careful development, teachers can build their effectiveness over time. In Community School District #2 in New York City, Superintendent Tony Alvarado has invested generously in the professional development of his principals and teachers. Focusing initially on reading, and then moving to mathematics, Alvarado made sure his teachers, in particular, got lots of on-site coaching from experts. As a result, student achievement has climbed steadily over the past 10 years. University of Michigan researcher David Cohen's recent study of professional development in California also shows its impact on student achievement when professional development focuses on new curricula and the content that undergirds it.[14] Similar results are evident in broad achievement gains in the three El Paso school districts, where more than 50 full-time teacher-coaches provide in-school assistance to teachers as they strive to improve student achievement.

These successful strategies differ in important ways from many professional development programs and initiatives. Far from the three-hour workshop about isolated topics, these strategies are ongoing, on-site and focused on the content that students should learn.

4. Assurance that poor and minority children have teachers that are at least as qualified as the ones that teach other students.

Actually, if we had our druthers, we would push for a policy requiring that, for the next two decades or so, these students should systematically be assigned our best teachers. Achieving either goal, though, would require careful attention to:

- Just who we are preparing to teach—where they come from and where they want to teach, in particular;
- Interdistrict differences in salaries for beginning and mid-career teachers;
- The practice of concentrating beginning teachers in school buildings with concentrations of poor children;
- District policies—often gained through collective bargaining—that reward senior teachers with the "right" to transfer to "easier" schools;
- Practices within schools, where teachers fight over who has to teach whom, with the senior, better educated teachers often winding up with the most advanced children; and
- The absence of clear incentives and prevalence of disincentives for teachers to work with poor and minority children.

These practices have been around for so long that they seem beyond change. But some school districts are beginning to make headway on rooting out these inequities. In San Antonio, for example, new policies on teacher assignment have begun to balance the distribution of teachers within the district. In other districts, special targeting of more highly compensated "mentor" positions is beginning to even out teacher expertise. Energetic principals can also reverse the normal pattern. For example, in the Los Angeles unified School District, where uncertified and out-of-field teachers are the norm, Principal Lupe Simpson of the all-minority Nimitz Middle School has a mathematics department full of fully certified, mathematics majors. How? By working her contacts with local universities.

5. "Parent Right to Know" policies.

Parents deserve to know when their children are being taught science by history majors or history by physical education grads. To be sure, this knowledge has been available to some, mostly affluent parents through their community grapevines. But nowhere has there been a systematic way of letting all parents know that their child's teacher has enough background in the subject to teach it so their students will understand it. When parents know where the needs are greatest, they can become partners in local efforts to secure an adequate number of well-qualified teachers for all their students.

6. Recruitment and rewards to attract the best into teaching.

We worry that, instead of seeking out the very best, too many teacher preparation programs simply make do with what walks in the door. That's not good, because SAT and other data suggest that the high school seniors who aspire to become teachers are among the least able of all prospective college students. It's also not good for communities with concentrations of minority and poor students because few of those who aspire to become teachers either grew up in or want to teach in such communities.

Many leaders in teacher preparation programs say that they're doing the best they can—that low salaries and lower prestige make it impossible to attract able candidates, especially minorities, to the teaching profession and higher standards will make it worse. We remain unconvinced. If these claims are correct, then why does Teach for America, which has far higher standards than most education schools, routinely attract far more qualified graduates than it can place? And why, among Teach for America's way-above-average corps members, are there more than twice as many minorities as there are in education schools?[15] The same would appear to be true for alternate certification programs that cater to young or mid-career professionals from other fields: no lack of smart or minority applicants.

These experiences and others tell us that we can produce the highly qualified teachers that we need by combining:

- High entry standards;
- Rich incentives like generous scholarships and loan forgiveness for highly able professionals who want to teach in high-poverty schools;
- Accountability systems that reward departments and campuses for the numbers of their top students that enter teaching; and
- Non-traditional, yet still rigorous, routes into the profession.

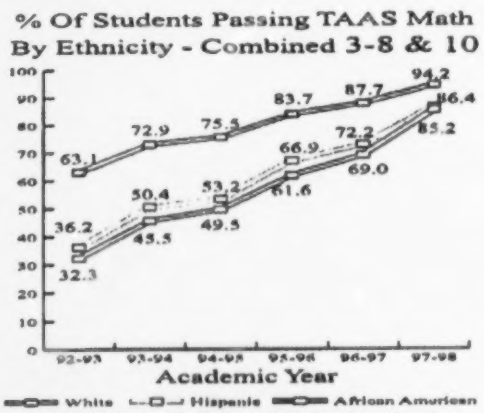
These are just some of the pieces of a solution to the vexing problem of assuring that we have teachers to match our goals. Solving this problem requires concerted action from policymakers, leaders in both K-12 and higher education, teacher unions, and parents. No single party can win the battle alone. All must be involved and at the table if we are to craft sound policies that will succeed.

But we must also understand that we cannot wait until every piece of this puzzle is in hand. Our inability to answer every question about teacher effectiveness right now shouldn't make us reluctant to use the devices we do have to begin to lure the best in, screen others out, and intensively develop the rest. And it certainly shouldn't deter us from doing what it takes to assure that poor and minority youngsters get at least their fair share of effective, well-prepared teachers.

We cannot wait until every piece of this puzzle is in hand. We must use the devices we have to lure the best teacher candidates in, screen others out, and develop the rest.

El Paso Closing the Gap

In 1992, leaders at the University of Texas-El Paso and the three El Paso-area school districts—El Paso, Ysleta, and Socorro—came together to create the El Paso Collaborative, a comprehensive effort to raise student achievement kindergarten through college. Their goal was to prepare every young person in this highly impoverished border city to be able to enter college without remediation, and the El Paso Standards they set reflected that goal.



The El Paso Collaborative for Academic Excellence, 1998.

Over the next five years, they focused hard on what matters most: excellent teaching. Through the Collaborative, El Paso teachers received intensive assistance in improving instruction, including summer institutes and regular on-site coaching, funded through a combination of NSF dollars and a redirection of federal and state funds. Meanwhile, leaders at the University made major changes in the way they were preparing teachers, to make sure that such teachers were fully prepared to teach to the El Paso standards.

The results of their hard work are clear in the data above: improved achievement and a narrower gap between groups. This is a refreshing change from the national picture of flat achievement and a widening gap between groups. Investing in teachers really does pay dividends!

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SAVE THE DATES!!!!

THE EDUCATION TRUST's annual conference will be held NOVEMBER 12-14, 1998 at the Grand Hyatt Hotel in Washington, D.C. This year's conference theme, ***Bringing it All Together: Making Standards, Curriculum and Professional Development Work for All Students, Kindergarten through College,*** continues the Education Trust's focus on strategies for closing the achievement gap that separates low-income and minority students from others. This conference will provide a forum for educators from all around the country, at all levels, who are struggling to figure out what changes are necessary to make standards-based education work both to raise achievement and to close the achievement gap.

Come to the conference as a member of a community team including teachers, parents, higher education, principals, counselors, superintendents—the people who, when working together, can drive a system to improve the education all students receive. Or come alone, ready to absorb what's shared and prepared to take what's learned back to those in your community struggling to find answers to difficult questions.

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